

# CASTLE MOUNTAIN CREEKS OWNERS ASSOCIATION (PWS #4080007) SOURCE WATER ASSESSMENT REPORT

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## State of Idaho Department of Environmental Quality

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## Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the watershed characteristics.

This report, *Source Water Assessment for Castle Mountain Creeks Owners Association, Boise County, Idaho*, describes the public drinking water system, the zone of water contribution, and the associated potential contaminant sources located within these boundaries. Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The Castle Mountain Creeks Owners Association drinking water system consists of one surface water intake in the Warm Springs Creek drainage and one ground water intake. This assessment is limited to the surface water intake, as the ground water intake susceptibility will be analyzed at a later date.

The system's surface water intake received a ranking of high susceptibility to contamination from microbials and low susceptibility to contamination from inorganic, volatile organic, and synthetic organic chemicals.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Due to the fairly short time associated with the movement of surface waters, source water protection activities should be aimed at short-term management strategies with the development of long-term management strategies to counter any future contamination threats. Source water protection activities should be coordinated with the Idaho Department of Lands, the U.S. Forest Service, and other agencies.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact your regional Idaho Department of Environmental Quality office or the Idaho Rural Water Association.

# **SOURCE WATER ASSESSMENT FOR CASTLE MOUNTAIN CREEKS OWNERS ASSOCIATION, BOISE COUNTY, IDAHO**

## **Section 1. Introduction - Basis for Assessment**

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area, map showing the entire watershed contributing to the delineated area, and the inventory of significant potential sources of contamination identified within the delineated area is attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is attached.

### **Background**

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the intakes and watershed characteristics.

### **Level of Accuracy and Purpose of the Assessment**

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

## **Section 2. Conducting the Assessment**

### **General Description of the Source Water Quality**

The Castle Mountain Creeks Owners Association public water system is a community system serving a population of approximately 100 people. The water system has one surface water intake located on Warm Springs Creek and one ground water intake. This assessment will be limited to the surface water intake as the ground water intake susceptibility analysis will be performed at a later date. The Castle Mountain Creeks area is located north of Crouch off Highway 55 in Boise County (Figure 1).

The primary water quality issue currently facing Castle Mountain Creeks Owners Association is prevention of microbial contamination and the problems associated with managing this contamination. Microbial contamination is a common concern for all surface water systems.

### **Defining the Zones of Contribution--Delineation**

To protect surface water systems from potential contaminants, the EPA required the entire watershed be delineated upstream from the intake to the hydrologic boundary of the watershed (U.S. EPA, 1997b). This delineation is also referred to as a topographic delineation, and is used for systems consisting of smaller watersheds. Because the watershed for Castle Mountain Creeks Owners Association water system is relatively small, the topographic procedure was used (Figure 2). The delineated source water assessment area for Castle Mountain Creeks Owners Association's surface water intake can best be described as a forested mountain watershed consisting of approximately 1,750 acres.

### **Identifying Potential Sources of Contamination**

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of surface water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination.

These involve educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply intake.

FIGURE 1 - Geographic Location of Castle Mt. Creeks Owners Assn. Surface Intake

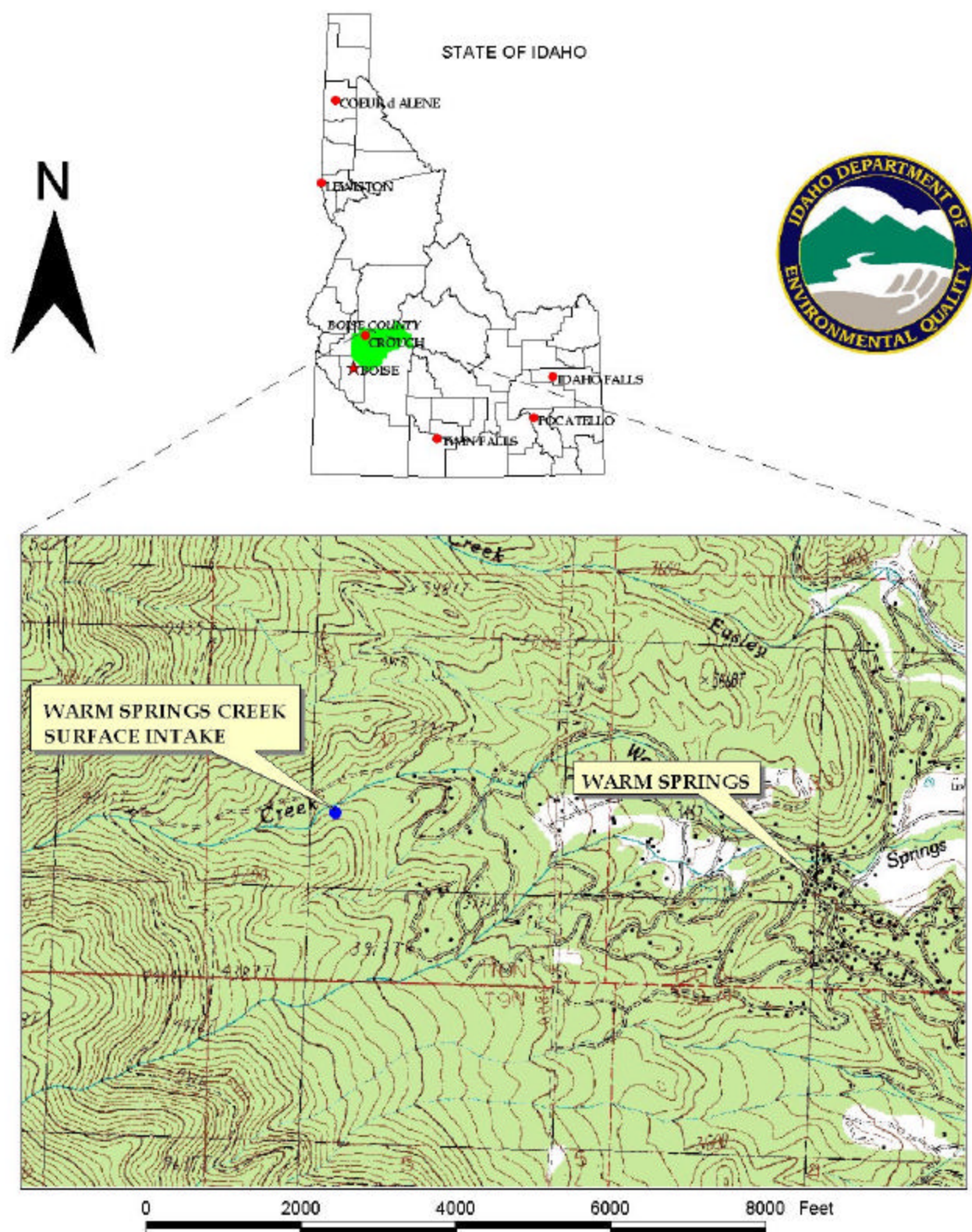
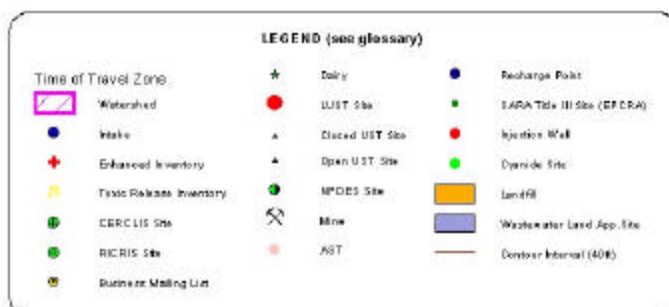
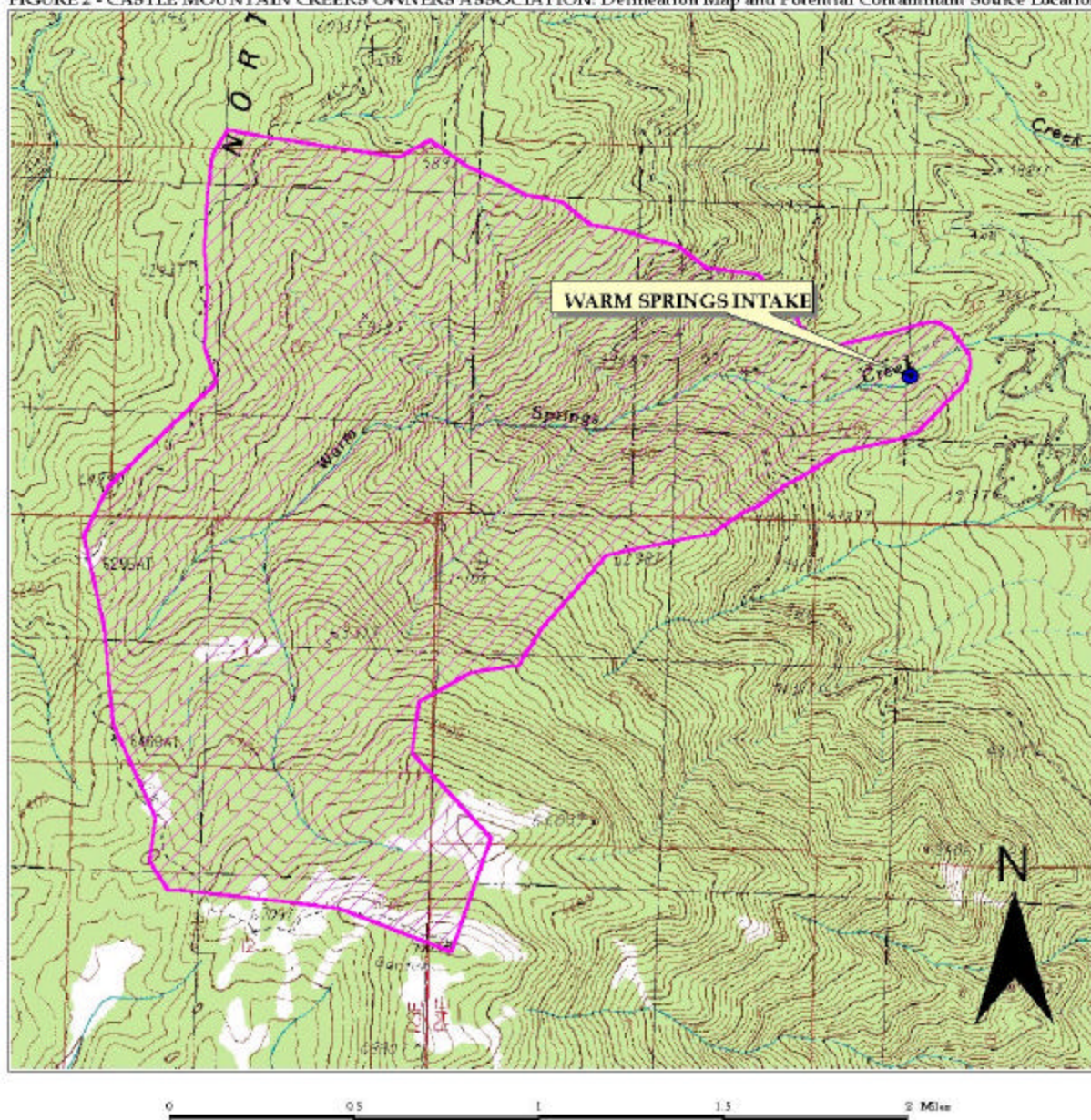




FIGURE 2 - CASTLE MOUNTAIN CREEKS OWNERS ASSOCIATION: Delineation Map and Potential Contaminant Source Locations



**PWS 4080007**  
**WARM SPRINGS CREEK**

## **Contaminant Source Inventory Process**

A contaminant inventory of the study area was conducted during August of 2000. This inventory involved identifying and documenting potential contaminant sources within the Castle Mountain Creeks Owners Association source water assessment area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ.

Based on available current information, there are no potential contamination sources located within the topographic delineation of the Warm Springs Creek drainage basin. However, microbial bacteria contamination is a concern for this water system, as it is for most surface water systems.

## **Susceptibility Analyses**

Susceptibility of the system was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity and construction of the intake, land use characteristic, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each intake is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

### **Intake Construction**

The design and construction of the Castle Mountain Creeks Owners Association water system directly affects the ability of the intake to protect the water system from contaminants. The surface water intake in this drinking water system is used to produce water for domestic and industrial uses. A high susceptibility ranking was given to the intake construction because there was no indication of proper intake construction or the existence of a natural infiltration gallery (i.e. soil or riverbed material) between the water source and the water system intake.

### **Potential Contaminant Source and Land Use**

The Warm Springs Creek water system ranked low in susceptibility to inorganic, volatile organic, and synthetic organic chemical contaminants. A recent detection of total coliform (microbial) bacteria in this system caused the system to automatically be ranked high in susceptibility to microbial contamination (Table 1). It is possible that the detections are a result of the distribution system and not necessarily the water source.

**Table 1. Summary of Castle Mountain Creeks Owners Association Susceptibility Evaluation**

Contaminant <sup>1</sup>	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
	IOC	VOC	SOC	Microbial		IOC	VOC	SOC	Microbial
Susceptibility Ranking <sup>2</sup>	L	L	L	M	H	L	L	L	H* <sup>3</sup>

<sup>1</sup>IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

<sup>2</sup>H = high susceptibility, M = moderate susceptibility, L = low susceptibility

<sup>3</sup>H\* - Indicates source automatically scored as high susceptibility due to presence of total coliform bacteria (microbials) in the finished drinking water that exceed Safe Drinking Water Act maximum contaminant levels.

### **Susceptibility Summary**

The Castle Mountain Creeks Owners Association drinking water system is most threatened by the potential of microbial contamination.

### **Section 3. Options for Source Water Protection**

This susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For Castle Mountain Creeks Owners Association, source water protection activities should focus on limiting/reducing any activities or disturbances that may affect the system. Due to the relatively short time involved with the movement of surface water, source water protection activities should be aimed at short-term management strategies with an emphasis on dealing with long-term future impacts from these same sources. Source water protection activities should be coordinated with the Idaho Department of Lands, the U.S. Forest Service, and other federal, state, and local agencies that have jurisdiction within the source water area.



## **Assistance**

Public water suppliers and users may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Boise Regional DEQ Office: (208) 373-0550

Idaho State DEQ Office: (208) 373-0502

DEQ Website: <http://www2.state.id.us/deq>

## References Cited

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. Recommended Standards for Water Works.

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Howarth, Rob, 1996. Ground Water Quality Technical Report No. 7. An Evaluation of Bacteria in Ground Water near Mountain Home, Elmore County, Idaho, Idaho Division of Environmental Quality, Southwest Idaho Regional Office.

U.S. Environmental Protection Agency, 1997. State Methods for Delineating Source Water Protection Areas for Surface Water Supplied Source of Drinking Water. EPA 816-R-97-008.

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## Attachment A

# Castle Mountain Creeks Owners Association Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined from the addition of the Potential Contaminant Source/Land Use Score and Source Construction Score.

Final Susceptibility Scoring:

0 - 7    Low Susceptibility

8 - 15    Moderate Susceptibility

$\geq 16$     High Susceptibility



1. System Construction		SCORE			
Intake structure properly constructed	NO	1			
Infiltration gallery or well under the direct influence of Surface Water	NO	0			
Total System Construction Score		3			
2. Potential Contaminant Source / Land Use		IOC Score	VOC Score	SOC Score	Microbial Score
Predominant land use type (land use or cover)	BASALT FLOW, UNDEVELOPED, OTHER	0	0	0	0
Farm chemical use high	NO	0	0	0	
Significant contaminant sources *	NO				
Sources of class II or III contaminants or microbials	present within the small stream segment of	0	0	0	4
Agricultural lands within 500 feet	NO	0	0	0	0
Three or more contaminant sources	NO	0	0	0	0
Sources of turbidity in the watershed	YES	1	1	1	1
Total Potential Contaminant Source / Land Use Score		1	1	1	9
3. Final Susceptibility Source Score		4	4	4	12
4. Final Source Ranking		Low	Low	Low	Moderate

\* Special consideration due to significant contaminant sources  
The source water has no special susceptibility concerns

# POTENTIAL CONTAMINANT INVENTORY

## LIST OF ACRONYMS AND DEFINITIONS

**AST (Aboveground Storage Tanks)** – Sites with aboveground storage tanks.

**Business Mailing List** – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

**CERCLIS** – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund, is designed to clean up hazardous waste sites that are on the national priority list (NPL).

**Cyanide Site** – DEQ permitted and known historical sites/facilities using cyanide.

**Dairy** – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

**Deep Injection Well** – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

**Enhanced Inventory** – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

**Floodplain** – This is a coverage of the 100year floodplains.

**Group 1 Sites** – These are sites that show elevated levels of contaminants and are not within the priority one areas.

**Inorganic Priority Area** – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

**Landfill** – Areas of open and closed municipal and non-municipal landfills.

**LUST (Leaking Underground Storage Tank)** – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

**Mines and Quarries** – Mines and quarries permitted through the Idaho Department of Lands.)

**Nitrate Priority Area** – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

**NPDES (National Pollutant Discharge Elimination System)**

– Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

**Organic Priority Areas** – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

**Recharge Point** – This includes active, proposed, and possible recharge sites on the Snake River Plain.

**RICRIS** – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

**SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities)** – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

**Toxic Release Inventory (TRI)** – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

**UST (Underground Storage Tank)** – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

**Wastewater Land Applications Sites** – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

**Wellheads** – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

**NOTE:** Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.